INVESTIGATOR'S ANNUAL REPORT

National Park Service

All or some of the information provided may be available to the public

Reporting Year: 1997	**Park:** Shenandoah NP
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Permit#:
SHEN1997AUKW

Park-assigned Study Id. #:
unknown

Project Title:
Nitrification And Forest Disturbance In Shaver Hollow Watershe, Shenandoah National Park, VA (N-187)

Permit Start Date: Jan 01, 1998	**Permit Expiration Date** Jan 01, 1998
Study Start Date: Jan 01, 1996	**Study End Date** Jan 01, 1997

Study Status:
Completed

Activity Type:
Research

Subject/Discipline:
Other

Objectives:
The goal of this research was to examine nitrification in Shaver Hollow Watershed, an upland forested catchment in western Virginia where stream water quality monitoring data revealed a strong sensitivity of nitrate dynamics to forest disturbance caused by gypsy moth infestation. This research objective was pursued through a hillslope-scale field experiment in which groups of experimental plots were amended with different combinations of C and N, and nitrifer population characteristics were monitored for response to treatment.

Findings and Status:
Plots were amended with combinations of 1000kg carbon (C as sawdust+glucose) and 50kg nitrogen (N as ammonium sulfate). Background nitrification potential was widespread and variable (0.5 - 2.5 ug N/g/d, based on in situ assays of net nitrification). N treatments significantly increased soil nitrification capacity, although the experimental design offered limited statistical power for detecting treatment effects. Autotrophic bacteria were primarily responsible for soil nitrate production at the field site. Nitrification is potentially a major watershed N-cycle flux (16-216kg N/ha/yr).

For this study, were one or more specimens collected and removed from the park but not destroyed during analyses?
No

Funding provided this reporting year by NPS: 0	**Funding provided this reporting year by other sources:** 1000

Fill out the following ONLY IF the National Park Service supported this project in this reporting year by providing money to a university or college

Full name of college or university:	**Annual funding provided by NPS to university or college this reporting year:**

University of Virignia	0